doubt whether this is an improvement on the usual practice.

The chapters on the flora of East Africa, and those on the Zanzibari and other natives of the country, contain a large amount of information, and are thoroughly readable. The same may be said of the concluding chapter on the national movements and future prospects of British East Africa. The whole book is clearly and well written and liberally illustrated, and the author, who quotes—and quotes appositely—not only Shakespeare, Byron and Göethe, but also Carlyle, Buckle, and Rudyard Kipling, has evidently gleaned widely in literary as well as in scientific fields. W. T. BLANFORD.

THE MEETING OF THE INTERNATIONAL COMMITTEE OF THE CARTE DU CIEL.[1]

AT the fourth meeting of the International Committee of the Carte du Ciel, which took place at the Paris Observatory in May, under the presidency of M. Tisserand, the following members were present: MM. Anguiano, Bailland, Bakhuyzen, Christie, Donner, Duner, Gill, Henry (Paul), Henry (Prosper), Loewy, Rayet, Ricco, Trépied, Turner, Viniegra. There were also present at the invitation of the Permanent Committee, MM. Abney, Backlund, Bouguet de la Grye, Callandreau, Common, Cornu, Downing, Fabre, Faye, Gautier (P.), Jacoby, Knobel, Laïs, Laussedat, Newcomb, Perrotin, Scheiner, Stephan, Wolf.

Of the eighteen observatories associated for the production of the Carte du Ciel, thirteen were represented. The directors of the five other observatories, MM. Russell (Sydney), Baracchi (Melbourne), Obrecht (Santiago), Cruls (Rio Janeiro), Beuf (La Plata), were prevented from attending by great distance or by professional duties.

The following officers were elected: President, M. Tisserand; Vice-Presidents, MM. Bakhuyzen and Gill; Secretaries, MM. Donner and Trépied.

The following resolutions were adopted:—

I.—Photographic Catalogue.

1. The Committee is of opinion that the probable error of the value of the rectilinear coordinates measured on the plates should be reduced to the smallest possible limits, and that the measurements must be directed in such a way that this probable error shall never exceed 0″·20.

2. (*a*) The Committee thinks it necessary to publish the rectilinear coordinates of the photographed stars as soon as possible.

(*b*) It is desirable that this publication should include the necessary information for the conversion of the results into equatorial coordinates.

(*c*) The Committee desires that a provisional catalogue of right ascensions and declinations should be published by those observatories which have sufficient funds at their disposal.

3. Each observatory will be at liberty to choose the positions of the comparison stars in the catalogues which seem to them most suitable. For the calculation of the constants of a plate, a minimum of ten comparison stars should be adopted if possible. The adopted positions of these comparison stars will be published.

4. The question of determining whether, for the reduction of the stars to 1900, it would be advisable to adopt a uniform system of constants for the observatories, will be the subject of a subsequent discussion.

5. The Committee recommends the adoption of a uniform size of publication for all the observatories; the size should be that of the volumes of the Catalogue of the Paris Observatory.

6. The observatories will be at liberty to determine the photographic magnitudes, either by measurements or by estimation. The only condition which the Committee thinks it necessary to impose, is that the system of photographic magnitudes on which the measures or estimations depend, should allow of a precise definition, so that the different scales used in the different observatories can be reduced to a common system.

II.—The Photographic Chart.

7. Every observatory will be provided with a scale of density, which will be printed on the plates at the same time as the *réseau*, and which will permit the determination of the sensibility of each plate for luminous sources of different intensities.

Captain Abney is charged by the Committee with the construction of the scales.

8. For the construction of the chart, the second series of negatives (that is to say, those of which the centres have odd numbers for their declinations) will be made in three exposures, each lasting thirty minutes. This time of exposure may, of course, be reduced if an increase of the sensibility of the photographic plates be secured.

9. The Committee allows photogravure on copper as a means of reproducing the chart. The negatives to be exposed three times, and enlarged to twice the original size.

10. The observatories will make two positives on glass by contact, one of which will be placed in the Pavillon de Breteuil, the headquarters of the International Bureau of Weights and Measures.

11. The Committee defers till the next meeting the examination of the measures which it may be necessary to take with the object of assisting those observatories which may anticipate a difficulty in completing their programme.

The meetings of the Committee were marked with the greatest cordiality, and with the desire to carry to the end the great work undertaken in common; the decisions, prepared by special sub-Committees, were passed unanimously by the members present.

The Conference was followed by a soirée on Saturday, May 16, and by a dinner given the next day (Sunday, May 17), in the large gallery of the Observatory, at which the following were present: MM. Rambaud, Minister of Public Instruction; Bertrand and Berthelot, Permanent Secretaries of the Academy of Sciences; Cornu and Chatin, President and Vice-President of the Academy; the members of the Committee, and numerous visitors belonging to the Academy, the Bureau des Longitudes, the Council of the Observatory, and the *personnel* of the establishment. Prof. Backlund, Dr. Downing, and Prof. Newcomb, members of the Conference on fundamental stars, were also present.

NOTES.

LIEUTENANT DE GERLACHE announces that the Belgian Antarctic Expedition he has been organising for some time past will not be sufficiently advanced to start before next year.

M. EUGÈNE TISSERAND will shortly retire from the post of Director-General of Agriculture in France, after forty-six years of public service.

EXTREMELY hot weather is reported from North America. In New York, on Tuesday, the shade temperature reached 97° F. As many as 226 deaths are recorded as being directly due to this abnormally high temperature. In Chicago there were fifty-one deaths on Monday, and twenty-five on Tuesday. Hundreds of dead horses are said to be lying in the streets. The thermometer registered 96° F. at Ottawa.

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[1] Abridged from the *Bulletin Astronomique*, July 1896.

THE deaths are announced of Dr. Kanitz, Professor of Botany in Klausenberg University, and Dr. Simony, formerly Professor of Physiography at Vienna.

OWING to a doubt having arisen as to whether the publication of *Climate and Health* was authorised by the Act appropriating to the U.S. Department of Agriculture the grant for the fiscal year ending June 30, 1897, that valuable repertory of statistical and other information relating to climatology and its connection with hygiene, has had to be discontinued. The special papers intended for it will be published in separate bulletins.

THE opticians of Pennsylvania are endeavouring to form a State organisation, having for its objects, first, the elevation and advancement of the profession and the mutual intercourse and benefit of its members; second, to encourage opticians to perfect themselves in the study of optics and the scientific adaptation of lenses in correcting errors of refraction; and, third, to discourage the haphazard and indiscriminate sale of spectacles by irresponsible and ignorant persons. British opticians might with advantage follow the lead of their Transatlantic brethren.

THE fifteenth Congress of the Sanitary Institute will be held at Newcastle-upon-Tyne, from September 2 to September 9. An inaugural address will be delivered by Earl Percy, and lectures will be given by Dr. A. Wynter Blyth and Sir Charles A. Cameron. The Sections and their Presidents are: (1) Sanitary Science and Preventive Medicine; President, Prof. W. H. Corfield. (2) Engineering and Architecture; President, Sir Andrew Noble. (3) Chemistry, Meteorology, and Geology; President, W. H. Dines. There will be conferences of port sanitary authorities, medical officers of health, municipal and county engineers, sanitary inspectors, and on domestic hygiene. Excursions and visits to places of interest will be made during the Congress, and particulars with reference to them will shortly be made known. The Health Exhibition, held in connection with the Congress, will be opened by the Duke of Cambridge.

THE summer meeting of the Institution of Junior Engineers will be opened on Saturday at Edinburgh. After visiting the Forth Bridge and a number of industrial works, the members will leave on Tuesday next for Glasgow, where many places of engineering interest await their inspection. In the afternoon of the same day the members will be received in the Municipal Buildings by the Lord Provost and the Corporation, afterwards being entertained to an excursion to visit one of the new reservoirs of the Glasgow Corporation Water Works. On Wednesday there will be an excursion to Dumbarton, and a reception by the Provost and Town Council. An excursion will take place on Thursday; and on Friday various works will be open for visiting, the selection being left with the members. In the evening of Friday, the Institution's summer dinner will be held at the Alexandra Hotel, Glasgow, the President, Mr. Archibald Denny, in the chair, and Lord Kelvin the guest of the evening.

IN the *Bulletin* of the University of Wisconsin (Engineering Series, vol. i. No. 9), Mr. G. A. Gerdtzen discusses in a very complete manner the relative advantages of gas, steam, and electricity for the supply of heat, light, and power for domestic purposes. Electricity gives a perfect solution of the problem considered apart from expense, but practically it is out of the question for heating purposes. Although most of the European work on the subject is mentioned and discussed, the chief interest of the paper lies in the details of American practice. Stress is laid by the author on the altered conditions due to the extensive introduction of incandescent gas-burners.

THE following are among the exhibitions at present open, or which will be opened in various parts of the world before the end of the century. 1896: Odessa, Industrial and Fine Arts; Prague, International Pharmaceutical; Cannes, International; Rouen, National and Colonial; Geneva, National; Berlin, Industrial; Kiel, Maritime and Fisheries; Mexico, International; Exhibition at Para; Exhibition at Johannesburg; New York, Electric; Barcelona, Industrial Arts; Denver (Colorado), International Mining and Industrial; Vienna, Agricultural Machinery; Nijni-Novgorod, National; Innsbruck, Hygienic; Lyons, Exhibition of Natural Hygiene; London, Motors and Automatic Carriages. 1897: Brussels, International; Hamburg, International Horticultural; Rio Janeiro Exhibition; Guatemala, Central American; Exhibition at Brisbane; Exhibition at Stockholm; Montreal, International; Nashville (Tennessee), International Industrial and Fine Arts. 1898: Amsterdam, Universal; Exhibition at St. Paul, Brazil; Exhibition at Turin. 1899: Exhibition at Adelaide. 1900: Universal Exhibition at Paris.

BY the death of Mr. H. J. Slack, at the advanced age of seventy-eight, science has lost one of its most keen journalistic champions. In years when headway had to be made against prejudice and even antagonism, his enthusiasm inspired many younger workers, and he saw in the spread of science one of the great factors of social progress. For many years he edited the *Intellectual Observer*, which passed later into the *Student*, a journal which to him was largely a labour of love, and which, by its attractive form, had a wide educational value. His own researches were mostly in microscopy, and he was successively Secretary and President of the Royal Microscopical Society. Forty-six papers are ascribed to his name in the Royal Society's Scientific Catalogue; and his work entitled "The Marvels of Pond Life," passed through three editions between 1861 and 1878. In 1879, as President of the National Sunday League, Mr. Slack organised popular lectures for Sunday evenings in London, and did much to inaugurate that movement in furtherance of a rational Sunday, which has now gone so far as to receive parliamentary recognition. He was one of those who combined devotion to science with a broad sense of public needs; for him, science had its duties as well as its rights; and few can have come in contact with him without being the better for his cheerful and unflagging zeal in the causes which he had at heart. He was born on October 23, 1818, and died in his house at Forest Row, Sussex, on June 16, 1896.

A BILL to legalise the use of weights and measures of the metric system in this country was read for the first time in the House of Commons on July 30. The Bill is as follows:—"I. (1) Notwithstanding anything in the Weights and Measures Act, 1878, the use of a weight or measure of the metric system in trade shall be lawful, and nothing in section nineteen of that Act shall make void any contract, bargain, sale, or dealing by reason only of its being made or had according to weights or measures of the metric system. (2) A person using or having in his possession a weight or measure of the metric system shall not by reason thereof be liable to any fine. (3) For the Third Schedule to the Weights and Measures Act, 1878, shall be substituted the Schedule to this Act. II. Section thirty-eight of the Weights and Measures Act, 1878, is hereby repealed, and the Board of Trade shall verify copies of metric standards in the same manner as if they were copies of Board of Trade standards, and the provisions of that Act relating to the verification of local standards shall apply accordingly. III. In section forty of the Weights and Measures Act, 1878, the expression 'local standards of weights and measures' shall include local metric standards and the provisions of that Act relating to local standards shall apply accordingly." The Schedule to the Bill gives a series of equivalents of metric and imperial weights and measures. The Bill will not be proceeded with this Session.

A RETURN has been presented to Parliament showing the number of licensed experiments performed on living animals during the year 1895. The total number of persons holding licences was 213, but of these 65 performed no experiments. Tables are given which afford evidence (1) that the licences and certificates have been granted and allowed only upon the recommendations of persons of high scientific standing; (2) that the licensees are persons who, by their training and education, are fitted to undertake experimental work and to profit by it; and (3) that all experimental work has been conducted in suitable places. The total number of experiments performed in 1895 was 4679. In 1560 of the experiments performed the animal suffered no pain, because complete anæsthesia was maintained from before the commencement of the experiment until the animal was killed; 2358 of the experiments were practically always of the nature of hypodermic injections or inoculations. In 761 experiments the animal was anæsthetised during the operation, but was allowed to recover. These operations, in order to insure success, are necessarily done with as much care as are similar operations upon the human subject, and, the wounds being dressed antiseptically, no pain results during the healing process. The large number of inoculation experiments is, to a great extent, attributable to investigations connected with the production of diphtheria-antitoxins and analogous bodies. More than half of the experiments under Certificate B have been inoculations made (under anæsthetics upon rodents) with the object of diagnosing rabies, the public having largely acted upon the advice printed upon the back of dog licences, which is to the following effect: "If a dog suspected of being rabid is killed after it has bitten any person or animal, a veterinary surgeon should be requested to forward the spinal cord to the Brown Institution, Wandsworth-road (or some other licensed institution) in order that it may be ascertained with certainty whether the animal was suffering from rabies."

PROF. JOHN MILNE, writing from his observing station in the Isle of Wight in reference to the long series of earth disturbances commencing on June 29 in Cyprus (see NATURE, August 6, p. 325), says that he also has recorded a long series of movements commencing on that date. Two alarming and severe shocks in Cyprus, in G.M.T., commenced on June 29 at *about* 8h. 48m. 0s., and July 2 at *about* 18h. 13m. 0s. The Isle of Wight records commence on the above dates at 9h. 02m. 26s. and 18h. 51m. 29s.

PROF. DR. A. GERLAND, in the *Zeitschrift der Gesellschaft für Erdkunde zu Berlin*, gives an account of the earthquake in South-western Germany on January 22, 1896. The disturbance was in many ways remarkable, extending as it did over an area of about 40,000 square kilometres; and it seems to have had its origin at a considerable depth below the surface, as the recorded times of its occurrence are nearly identical over the whole region affected. The disturbance lasted on an average about five seconds, and was apparently of the nature of a sudden shock in an east to west or west to east direction, although in Strassburg and Stuttgart it seems to have been vertical; affording an excellent illustration of the fact, pointed out by Prof. Schmidt, that the direction of displacement is not necessarily connected with the direction of propagation of the disturbance. A remarkable feature of the disturbed region is the occurrence of isolated areas which remained unaffected; this is especially the case in the Jura, Le Locle and La Chaux le Fonds being the only stations reporting even a slight shock.

THE *Bollettino della Società Geografica Italiana* contains a note on some observations recently made by Dr. S. Angelini on the colour and transparency of the waters of the lagoon at Venice and of the Gulf of Gaeta. The depths at which white, green, red and blue discs, each 50 cm. in diameter, ceased to be visible from the surface, were measured with the following results:—

		White.	Green.	Red.	Blue.
Lagoon	Metres	1·98	1·85	1·80	1·50
Gulf of Gaeta	,,	8·50	7·80	7·00	6·00

The ratios of these numbers indicate a somewhat greater relative transparency in the waters of the lagoon for red and blue rays than for white or red.

DR. A. LINDENKOHL contributes to *Science* an abstract of a report on the work of American surveying vessels in the Gulf of Mexico and the region of the Gulf Stream during the last twenty years. The full memoir is to be published in the annual "Report of the U.S. Coast and Geodetic Survey" for 1895, and, amongst other important matter, includes a discussion of the sources from which the Gulf Stream derives its waters. It appears that the Gulf of Mexico supplies only a very small part of the whole, the currents entering and leaving it being inconsiderable both in volume and velocity.

HERR FRIEDRICH BENESCH contributes to the *Mittheilungen der K.K. Geographischen Gesellschaft in Wien* a short description of Pauliny's new method of drawing relief maps, which he says is a great advance on any method now in use, both in respect of accuracy and of ease in execution. The map is in effect a closely-contoured map, printed on silver-grey paper, the contour lines being white where illuminated by a source of light supposed to be 45° above the western horizon, and black elsewhere. Level plateaus and slightly sloping areas are thus represented by the natural grey colour of the paper; steep declivities towards the west are lightened by the closely drawn white lines, and towards the east correspondingly darkened by the black lines, the departure from the normal grey being greater the closer the lines, *i.e.* the steeper the slope. The method has the merit of giving a clear idea of *steepness* derived from the contour lines themselves; and while it does not demand the high standard of skill necessary in Lehmann's method of hachuring, the confusion produced by the shadows in some modern maps, where the illumination is supposed to come from the horizon, is avoided. Maps illustrating Herr Pauliny's method are to be published in Vienna in the course of the summer.

IN the *Atti dei Lincei*, Dr. Vittorio Abelli describes a remarkable case which occurred in the course of a scientific expedition on the slopes of Monte Rosa. At an altitude of 4560 metres, a member of the party, twenty-two years of age, was suddenly attacked with pulmonitis, and subsequently completely recovered from the disease. This led Dr. Desiderio Kuthy, of Budapest, to carry on a series of experiments on the action of rarefied air on the *Diplococcus* of pulmonitis, and also on the *Pneumococcus* of Fraenkel. Two conclusions were drawn from these investigations: firstly, that rabbits after being inoculated with this *Pneumococcus* die more rapidly when they are surrounded by air at the reduced pressure corresponding to that on Monte Rosa; secondly, that this occurs although the *Pneumococcus* is less virulent when it is developed in rarefied air. In the case of the youth Ramella, Dr. Kuthy considers that the infection was mitigated in consequence of the attenuation of the *Pneumococcus* arising from the rarefaction of the air, but the same circumstance caused the attack to be more violent in spite of the mildness of the infection.

IN the *Nuovo Cimento* for June, Dr. A. Fontana describes a new form of slide-rule designed for the purpose of shortening the calculation of the corrections which have to be applied when a body is weighed in air, and its weight *in vacuo* is required. The device bids fair to prove very useful in physical laboratories where weighings are constantly being made.

AT the conclusion of a lecture on the transformation of the energy of carbon into other available forms, recently delivered before the Franklin Institute by Mr. C. J. Reed, the Jacques cell, described in a note in these columns on July 30 (p. 298), was referred to. Several experiments were performed to show that the cell is a thermo-electric one. "It was shown (we quote the Society's *Journal*) that, at low temperatures, while the caustic alkali contained considerable water, the carbon was positive to the iron; but that at a high temperature, after the alkali had become highly dehydrated, the carbon was negative to the iron. The carbon rod was replaced, successively, by rods of brass, copper, German-silver, and iron, without appreciably affecting the result, and a current of illuminating gas was passed into the fused alkali in place of the current of air employed by Jacques. The result was unchanged, showing that the action of the current of air was not to produce oxidation, but to cool the upper layer of the alkali."

IF the stability of a nation is measured by the amount of care bestowed upon forests, the power of Germany is not likely to decline. Mr. G. A. Daubeny contributes to *Nature Notes* a chatty account of forestry in Germany, where more than twenty-five per cent. of the land is covered with trees. In Prussia, twenty-three per cent. is forest; but in England the proportion of forest land is small—only four per cent. There is quite an army of foresters in Germany—about twelve thousand in all—and, as is well known, these officials receive a thorough training in all the branches of their subject. Mr. Daubeny ascribes the decayed power of Syria, of Greece, and of Spain to the neglect of their forests, and urges the afforestation of land as a means of developing national resources. "Den Wald zu pflegen, bringt allen Segen," says a German proverb; and even if the care of forests does not bring every good, it adds considerably to the wealth of a nation.

UNDER the title "Publications of the Smithsonian Institution," by Mr. W. J. Rhees, a list of a number of papers printed from the Institution's Contributions to Knowledge, Miscellaneous Collections, and Annual Reports, for sale or exchange, has been issued. The papers are classified according to a comprehensive scheme of subjects, and are fully indexed. Every student of science will find in the list works which he will be anxious to possess.

WE have received from Messrs. Marcus Ward and Co. a small portfolio of forty coloured prints of common native and introduced plants found in Manitoba. There is no explanatory letter-press, and nothing to show whether there are more to come or not. All we can say for them is that the figures are tolerably well drawn, though often crudely coloured. Still they are recognisable, and may prove serviceable to persons who wish to know the names of plants growing in their neighbourhood.

LOCAL scientific societies keep alive the spirit of inquiry, but they often err on the side of dilettantism. We are afraid the *Proceedings* of the Bath Natural History and Antiquarian Field Club comes into this category, for though the number (vol. viii. No. 3) just received contains a helpful paper by Mr. A. Smith Woodward on the collection of fossil fishes from the Upper Lias of Ilminster, in the Bath Museum, and some notes of local antiquarian interest, there is also a description of an excursion to witness a diviner's experiments in water-finding. It would be well if societies like that at Bath would help more seriously to extend natural knowledge than many of them do at present.

TWO ponderous volumes of the "Palæontologia Indica"—a publication which, as every geologist knows, is devoted to the description and illustration of organic remains procured during the progress of the geological survey of India—have lately reached us. In one of them (Series xiii. vol. ii. part i.), Dr. William Waagen continues his work on "Salt-Range Fossils" by descriptions of the fossil contents of the Ceratite beds. These beds are believed to represent the Trias of Europe, but it is not possible to say exactly what parts of the Trias are represented by them, though Dr. Waagen's contribution will enable the question to be profitably discussed. The fossils which are obtained from the Ceratite formation of the Salt-Range are chiefly Cephalopoda, only a few remains of fishes having been found. The present volume contains the determinations of the genera of the few specimens available, but by far the greater part of it is devoted to the Ammonoids. The specific descriptions of the fossils, and the remarkably fine plates which illustrate them, will prove of prime importance in the further consideration of the classification of that order. In the definition of the genera and families treated by Dr. Waagen, the groups are minutely characterised, but the developmental connection is only kept in sight so far as it has been demonstrated. It is held that, in the present state of our knowledge, it is undesirable to do more than arrange the single genera according to their affinities in smaller groups, or families. Dr. Waagen's memoir will, however, enable the developmental relations to be more fully worked out than has previously been possible.

THE second memoir referred to in the foregoing note belongs to Series xv. of the "Palæontologia Indica." In it Dr. Carl Diener describes "The Cephalopoda of the Muschelkalk." The volume is a monograph on the Cephalopoda of the Muschelkalk—a distinct geological horizon in the Himalayan Trias, regarded by Dr. E. von Mojsisovics as a connecting-link between the triassic Mediterranean and Arctic-Pacific provinces. Dr. Diener has used a wealth of palæontological materials in preparing his work, and his interpretation of them is a valuable contribution to the knowledge of the triassic fauna of the Himalayas. In a third publication to which we must call attention (*Memoirs* of the Geological Survey of India, vol. xxvii. part 1), Dr. F. Noetling describes "Some Marine Fossils from the Miocene of Upper Burma." Sixty-nine species are described, and fifty-one have been determined. From these identifications it is seen that the fauna represents a marked Indian facies, slightly sprinkled with a more Southern element from Java.

AT the beginning of last year it was decided by the United States Congress that future annual reports of the Department of Agriculture should be divided into two volumes: first, an executive and business report; and second, a volume "specially suited to interest and instruct the farmers of the country," made up of papers from the Department bureaus and divisions. This latter volume ("Yearbook of the Department of Agriculture, 1895") has recently been distributed, and it will undoubtedly extend agricultural knowledge in the United States. In the first place, the volume contains a general report of the operations of the Department during 1895. Then there is a series of thirty-three essays by experts, discussing in easy language the results of investigations in agricultural science and new developments in farm practice. As years go on, successive issues of Yearbooks of this kind will give farmers a good library covering the applications of science to practical agriculture. In an appendix, a large amount of miscellaneous information, taken from the reports of the Department, is presented with especial regard to the agricultural reader. It is impossible for us even to enumerate the many papers contained in the volume. Valuable data, facts of interest, recipes, directions with regard to agricultural practice, and descriptions of the relation of forests to farms, insect pests, principles of pruning, soil ferments, common birds of the farm and garden, and co-operative road construction are given in an instructive and interesting form. To quote the words of Mr. C. W. Dabney, Assistant Secretary of the Department: "It has been sought to make the volume a concise reference book of useful agricultural information based in great part upon the work of this and other Departments of the Government, without making it an encyclopædia of general information. In brief, the effort has been to make a book, and not a mere Government report—a book worthy to be published in an edition of half a million copies and at an expense to the people, if we count both publication and distribution, of over four hundred thousand dollars." The money thus spent in disseminating accurate knowledge of agricultural investigations may appear excessive, but it will be returned to the country a hundred-fold.

THE additions to the Zoological Society's Gardens during the past week include a Black-faced Kangaroo (*Macropus melanopus*, ♂) from Australia, presented by Mr. G. T. Wills; a Loder's Gazelle (*Gazella loderi*, ♀) from Oued Souf, Algeria, presented by Mr. A. B. Birdwood; a Gazelle (*Gazella* ——), two Hairy-footed Jerboas (*Dipus hirtipes*), a Spot-bellied Snake (*Zamenis ventrimaculatus*), an Ocellated Sand Skink (*Seps ocellatus*) from Arabia, presented by Dixon Bey; a Common Cormorant (*Phalacrocorax carbo*), British, presented by Miss G. Howell; two Passerine Parrots (*Psittacula passerina*) from South America, presented by Miss L. Scott Moncrieff; a Brown Capuchin (*Cebus fatuellus*) from Guiana, a Grey Ichneumon (*Herpestes griseus*) from India, deposited; two Patagonian Cavies (*Dolichotis patachonica*), two Ypecaha Rails (*Aramides ypecaha*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

BROOKS'S COMET.—This comet, which M. Javelle, of Nice, has fortunately re-discovered, remains so faint an object, that other observations for the improvement of the elements, computed by Dr. Bauschinger, are still wanting. The one position secured has been utilised to correct the mean motion, and consequently the time of perihelion passage. This will take place November 4·18375, Berlin mean time, or only 0·2083 days later than the time determined from the last appearance. The excentricity needs probably a small correction, but the data for its determination are not yet existing. The following ephemeris, for Berlin midnight, is derived from the corrected mean motion and time of perihelion passage.

1896.		R.A. h. m. s.	Decl. ° ′ ″	Brightness.
Aug.	13	22 32 43·50	−18 54 24·1	1·8
	16	30 58·66	18 59 1·0	1·9
	20	28 26·73	19 4 4·9	1·9
	24	25 44·87	19 7 30·7	2·0
	28	22 58·22	19 8 52·5	2·0
Sept.	1	20 11·78	19 7 49·1	2·1
	5	17 31·14	19 4 1·2	2·1
	9	15 2·04	18 57 10·7	2·1
	13	12 49·63	18 47 8·8	2·0
	17	10 58·23	18 33 53·0	2·0
	21	9 31·79	18 17 22·7	2·0
	25	8 32·66	17 57 45·6	2·0
	29	8 2·93	17 35 8·0	1·9

For finding the comet, the bright star Fomalhaut will still be convenient, the region comprised in the ephemeris being about 11° north of the star, and on the meridian (London) about 1·45 a.m.

METEOR TRAILS.—We noted on July 30 (p. 301) that attention has been called by Prof. Johnstone Stoney and others to the desirability of observing the meteors in November next, which are likely to form part of the great November shower, particularly with the view of settling the question of the date at which the shower was introduced into the solar system. Improved methods of observation might have been expected to furnish more accurate information, and lead to a closer approximation to the orbit. It is therefore disappointing to read in the Report issued by Dr. Elkin, the Director of the Yale Observatory, that, notwithstanding repeated efforts, no photographic records of meteor trails have been secured. The apparatus was in use for the August meteors, but none were of sufficient brilliancy to impress themselves upon the film, which had become somewhat fagged by the strong moonlight. Other occasions were equally disappointing: but the Director is not discouraged, and in place of the two lenses now employed he hopes to substitute the complete battery of lenses for which the mounting was originally planned.

PERSONAL EQUATION IN OBSERVING TRANSITS.—The vexed question of the existence and necessary removal of personal equation in determining clock error has been attacked by Mr. R. H. Tucker, of the Lick Observatory. The particular form of the question to which Mr. Tucker has applied himself is that raised some years since by Prof. van der Bakhuyzen, of the effect of the brilliancy of the star on the time of transit determined by chronographic registration. Mr. Tucker placed over the object-glass four thicknesses of wire netting, which reduced the magnitude of the star 4·1 magnitudes, or, in other words, destroyed all but one forty-fifth part of the original light. The clock error was determined from the observations of stars, with and without the screen alternately, with the result that the faint stars were observed 0·037s. later than when seen at their full brilliancy. The correction to observed right ascension is −0·009s. for each magnitude, with a probable error of ±0·001s.

RECENT RESEARCHES ON RÖNTGEN RAYS.

THE subjoined summary brings together in a convenient form for reference a number of researches on Röntgen rays which have recently come under our notice. It will be seen that a large amount of detailed information with reference to the character and capabilities of the rays is being accumulated by investigators in various parts of the world.

Dr. A. Dupré, F.R.S., writes, under date July 29:

"The article by Mr. Benjamin Davies, in your issue of July 23, has recalled to my mind certain experiments of my own, made several months since, which may perhaps throw some light on Mr. Davies' results. I was then working with various vacuum tubes, and among others with an ordinary Geissler tube containing nitrogen, such as is used for obtaining spectra of gases. The capillary part of this tube gave a brilliant light, which had the power of inducing fluorescence of many substances, to a remarkable degree, the light falling direct on to the substance. The tube being in action, the screen covered with platino-cyanide of potassium fluoresced strongly ten feet from the tube, the active surface being towards the tube. This was, of course, to be expected, but, to my astonishment, the fluorescence was almost equally noticeable when the back of the screen was turned towards the tube, and remained so even when I interposed a book, a board, a sheet of tin-plate, or the human body between the tube and the screen. When, however, I placed my hand against the back of the screen, no trace of a shadow was noticeable; the same was the case when pieces of metal, or other objects opaque to the Röntgen rays were so placed. The screen all the while remaining strongly and uniformly fluorescent. This seemed to me to show that, whatever the nature of the rays producing the fluorescence of the screen, they could not be Röntgen rays; and I concluded that the fluorescence was really due to light striking the front, or active, surface of the screen after reflection, either from the walls of the room, or, perhaps, from the air. When accordingly all possibility of any light thus reaching the screen was excluded, all fluorescence was effectually stopped. Might it not be possible that in Mr. Davies' experiment the fluorescence of his screen was in part, at least, induced by rays reaching the active surface of the screen after reflection? Thus accounting for the fact that the hand cast no shadow whatever."

Mr. J. A. M'Clelland read a paper on the "Selective Absorption of Röntgen Rays" before the Royal Society on June 18. The experiments described in the paper were made to determine whether or not the Röntgen rays given off by a vacuum bulb were of a homogeneous nature, by examining the manner in which they are absorbed by different substances. The substance whose absorptive power was to be examined—say, a plate of glass—was placed so that the rays traversed it before falling on a charged disc, which was in connection with a pair of